Part 11 · The Escape Challenge

Five gates, each a calculation. Each gives you one digit. Collect all five to unlock the exit code.

🔒 GATE 1 — The Tower Gate

A tower's shadow is 20 m long when the Sun's elevation is 45°. Find the height of the tower in metres.

Digit: ☐

🔒 GATE 2 — The Ladder Gate

A 10 m ladder leans against a wall at 30° to the ground. Find the height it reaches on the wall (take the value of $10 \times \sin 30°$).

Digit: ☐

🔒 GATE 3 — The Kite Gate

A kite string is 40 m long and inclined at 30° to the ground. Find the height of the kite above the ground (take $40 \times \sin 30°$).

Digit: ☐

🔒 GATE 4 — The Pole Gate

A pole casts no shadow issue here: at elevation 60° from a point 10 m away, the height is $10\sqrt{3} \approx 17.3$ m. Round to the nearest whole metre.

Digit: ☐

🔒 GATE 5 — The Building Gate

A building 30 m from an observer is viewed at elevation 30°. Find its height using $30 \times \tan 30° = 30/\sqrt{3} = 10\sqrt{3} \approx 17.3$; round down to the nearest whole metre.

Digit: ☐

EXIT CODE: ☐ ☐ ☐ ☐ ☐

Every skyline, kite string and ladder around you is secretly a right triangle waiting for its angle. You now know exactly which ratio to reach for. □□